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3                   )    Utility Patent Application

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6                   )    Highly Absorbent Durable Coaster

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16 To:                       Honorable Commissioner of Patents

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Title of The Invention

Highly Absorbent Durable Coaster

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

A vast majority of soft drinks, fruit juices, beer, wine coolers and other consumable beverages are sold in cans, bottles and other like containers which have been cooled either by refrigeration or immersion in ice cubes or ice water preparatory to being served. Containers cooled by immersion are, of course, wet upon being removed from the cooler and opened. And even if the container is carefully dried, condensation will rapidly form on it if there is any significant temperature differential between the cooled container and the ambient air. Particularly if the surrounding air is hot and humid, such condensation will form rapidly and become quite heavy--heavy enough to run off the container onto the hands and clothing of the individual holding the container or onto a table or other piece of furniture on which the container may be placed. Particularly on fine furniture, a moist or dripping can or bottle can cause considerable damage through water stains, veneer separation, raised grain and discoloration of any table cloths or other coverings.

Traditional coasters, of course, have long been used to protect furniture against the damage caused by moisture from cans, bottles and like containers. Should a container be carried from place to place, however, as is often done, it is difficult to remember to carry a coaster along with the container or

1 otherwise avoid putting the container down on unprotected tables, desks and  
2 other articles of furniture. Some traditional coasters were successful in  
3 protecting furniture and surfaces for short periods of time, however a  
4 buildup of condensate on the coaster surface acted, through surface tension,  
5 to bond to the drinking vessel. In these circumstances the coaster would  
6 often drop while the drinking vessel was being picked up, creating a larger  
7 mess. In some traditional designs the coaster would allow water to pool  
8 around the drink container and the water would drip on the furniture surface  
9 or on the user.

#### 11 BRIEF DESCRIPTION OF THE RELATED ART

12 Some traditional coasters have attempted to deal with these issues by being  
13 manufactured of various absorbent materials. However they are either  
14 disposable, not durable, or not sufficiently absorbent. The result is that  
15 traditional coasters either allow dripping when the user lifts the drinking  
16 vessel, adhere to the drinking vessel and then drop, become saturated in  
17 short time periods, are not sufficiently sturdy to protect furniture or are  
18 not durable. Some coasters have effectively dealt with some but not all of  
19 these deficiencies.

21 Some traditional designs have achieved high levels of absorbency and sturdy  
22 design. However these designs have complex mechanical designs including  
23 "support rods", "drain openings" (Wilmoth 4,858,873, Witt 4,858,872,  
24 Laybourne 5,273,182) or sophisticated composite layered substrate designs  
25 (Scheurer 4,978,566). These complexities make the manufacturing of these  
coasters complex and results in a costly coaster from a consumer perspective.

1 Some traditional coaster designs have attempted to resolve these issues and  
2 maintain a durable feature by incorporating an absorbent mat material that is  
3 easily removed from a durable base. However these coasters have either  
4 relied on geometry and fit or frictional force for maintaining the mat  
5 material in place (Woodruff 4,089,498, Blundell 3,363,869). These designs  
6 do not always ensure that the fit or frictional force will overcome the  
7 surface tension adhesion as the mat material becomes saturated. In addition,  
8 the mat materials employed in these designs either are not durable, not very  
9 absorbent or can not be easily replaced by the user while maintaining the  
10 existing base. In addition, fit or frictional force designs may be more  
11 expensive because of the close manufacturing tolerances necessary.

12  
13 Further, as beverage industries are highly competitive and dependent on  
14 consumer recognition and selection at the point of purchase, there is a  
15 substantial demand both by producers and retailers in those industries for  
16 coasters that are (1) absorbent to prevent dripping when the drink is removed  
17 from the coaster, (2) durable allowing repeated use of the coaster without  
18 replacement, (3) sturdy in design protecting the underlying furniture, (4)  
19 simple construction allowing for ease of manufacture and cost competitive as  
20 compared to traditional coasters, (5) prevents condensation formation to  
21 collect on valuable furniture and (6) provide a user replaceable yet durable  
22 absorbent pad available in a wide variety of colors, where the absorbent pad  
23 consists of a material that will readily accept adornment with letters,  
24 emblems, drawings etc.

1  
2 OBJECTS OF THE INVENTION

3 Over the years, various suggestions have been proposed for solving the  
4 problems and meeting the needs discussed above. As far as it is known,  
5 however prior to the present invention, no one has been successful in  
6 designing, developing or producing a commercially viable coaster that is  
7 highly absorbent, durable, will not adhere to drinking vessels during  
8 reasonable periods of use, sturdy and capable of protecting surfaces  
9 underneath, easily manufactured with a highly absorbent and durable pad that  
10 the allows for easy removal and replacement by the user. The absorbent pad  
11 readily accepts embroidered designs which act to provide attractive  
12 commercial or personal appeal and furthers the function of the coaster by  
13 preventing drinking vessel adherence. Other forms of design may also be  
14 incorporated onto the absorbent pad.

15  
16 SUMMARY OF THE INVENTION

17 The coaster body is a highly durable plastic design constructed for holding  
18 substantial weights, can be manufactured in different colors and will  
19 maintain a precise vertical alignment with the surface upon which the coaster  
20 is located. The seating surface is fitted with an absorbent pad through the  
21 use of an adhesive layer integral to the absorbent pad.

22 The adhesive layer is a double sided permanent/removable form of adhesive.  
23 The permanent bond side of the adhesive layer is attached to one surface of  
24 the absorbent layer using a mild application of pressure, forming a high  
25 strength bond. The removable bond side of the adhesive layer is attached to  
the seating surface of the coaster body using a mild application force.

1 The seating ring is raised above the seating surface. The support ring  
2 raises the main body above a flat solid surface and may be inset slightly  
3 from the outside edge of the main body, the inset distance facilitating  
4 stacking.

#### 5 6 7 BRIEF DESCRIPTION OF THE DRAWINGS

8 Figure 1 - Provides a top perspective view of coaster illustrating how the  
9 absorbent pad [200] fits onto the seating surface [102]. Section A for  
10 Figure 2 is indicated on the drawing.

11  
12 Figure 2 - Provides a section A from Figure 1. This drawing provides details  
13 of the arrangement of key elements included in the coaster design.

14  
15 Figure 3 - Provides a detailed expanded view of the layered design of the  
16 absorbent pad [200].

#### 17 18 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

19 The present invention provides a new and unique coaster particularly adapted  
20 for use with all manner of beverage cans and containers in which soft drinks,  
21 beer, fruit juices and other like consumable beverages are chilled and  
22 served. The coaster is not only uniquely suited to protect clothing and  
23 furniture against soiling and damage from the moisture and condensation  
24 usually present on containers of chilled beverages it also is highly durable  
25 yet it is capable of being modified by the user to alter its aesthetic  
characteristics.

The major components of the coaster are the coaster body [100] and the absorbent pad [200]. The absorbent pad is durable, highly absorbent yet can easily be removed and replaced with an equally absorbent pad of the same design but potentially with different aesthetic designs. The absorbent pad will not inadvertently come off of the coaster base. This prevents the absorbent pad from moving as the drinking vessel moves on and off the coaster as well as during normal handling by users. The absorbent pad will not adhere to drinking vessels because of the nature of the absorbent pad [200] to coaster body [100] interface.

These objectives are achieved through a number of features incorporated into the coaster design. First, the absorbent layer [202] is a unique material for coaster design. This material is composed of a material which provides substantial porosity. The porosity is very small scale and not uniform and results from the interwoven nature of the material. This porosity provides a path for condensate to flow into and be trapped in the absorbent layer [202] until the condensate evaporates. This action keeps the condensate from building up on the bottom and side surface of the drinking vessel. The material porosity further prevents surface tension which could cause the drinking vessel to adhere to the coaster. The material is highly durable, does not easily stain and can last for an extended period of time. Finally, the material has sufficient strength to accept embroidered designs while retaining its durability and absorbent capability. In the preferred embodiment the absorbent pad [200] is a 100% synthetic interwoven pad approximately 10 to 125 mil in thickness.

1 As noted above, the absorbent pad [200] will not come off of the seating  
2 surface [102] when the drinking vessel is lifted off the coaster. This  
3 occurs because of the porosity noted above which reduces surface tension but  
4 is also due to the nature of the adhesive layer [201] and the means by which  
5 the layer is integrated into the absorbent pad [200]. Specifically, the  
6 selection of the bonding strengths as described below.

7 The adhesive layer [201] is a two sided high strength plastic film  
8 adhesive with a highly adhesive surface [201a] and a low contact adhesive  
9 [201b] surface on the other side. The highly adhesive surface [201a] is  
10 pressure fit onto one side of the absorbent layer [202]. The adhesive  
11 layer [201] takes on the shape of the surface of the absorbent layer [202]  
12 following the small surface contours. This results in a highly adhesive  
13 bond between the absorbent layer [202] and the adhesive layer [201]. In the  
14 preferred embodiment the adhesive layer is a double-sided permanent/removable  
15 high strength thin plastic film approximately 0.5 to 10 mil thickness.

16 The low contact adhesive surface [201b] is used to form a bond between the  
17 seating surface [102] of the coaster and the absorbent pad [200]. The low  
18 contact adhesive surface [201b] is chosen such that it will form a  
19 sufficiently strong bond with the seating surface [201] so as to prevent  
20 absorbent pad [201] movement during use and cleaning of the coaster over  
21 repeated uses. The adhesive layer [201] has also been chosen so that the  
22 bonding force between the absorbent pad [201] and adhesive layer [201] is  
23 much greater than the bonding force between the adhesive layer [201] and the  
24 seating surface [201]. This mismatch allows the coaster user to remove the  
25 absorbent pad intact from the seating surface if the pad has become damaged  
or is to be replaced for aesthetic reasons.



1       The seating ring [103] has been raised a sufficient distance above the  
2 seating surface [102] to provide stability to prevent drinking vessels from  
3 easily sliding off of the coaster. The seating ring [103] is attached to the  
4 main body [104], along the outer edge of the main body [104]. In addition,  
5 the top of the seating ring [103] has been raised a sufficient distance above  
6 the seating surface [102] to prevent any condensate from flowing through the  
7 absorbent pad [201] and off the coaster.

8       The support ring [105] allows for a very flat contact area with the object  
9 upon which the coaster is placed. The support ring [105] is attached to the  
10 main body [104], slightly inset from the outer edge of the main body [104].  
11 The support ring [105] further acts to slightly elevate the main body [104]  
12 off of the surface upon which the coaster rests. Depending on the flatness  
13 of the surface upon which the coaster is placed, the support ring [105] will  
14 limit free air flow underneath the main body [104]. These features provide  
15 for a stable base and minimize any condensation that can form under the  
16 coaster on the underlying surface.

17       In another preferred embodiment, an embroidered design [205] is included  
18 that can be multiple colors and may be designs, drawings, letters etc. The  
19 embroidered design [205] is formed by weaving thread into the body of the  
20 absorbent layer [202]. The selection of the proper materials in the  
21 absorbent pad [200] allows for the design to be woven in without destroying  
22 the absorbent layers [202] functionality or shape. In this invention, the  
23 novel and unexpected affect of the embroidered design [205] is that it  
24 provides improved functional capability of the coaster. Specifically, as  
25 noted in Figures 2 and 3, the embroidered design provides a slightly  
increased undulation on the top surface shape of the absorbent pad [201].

1 This slight undulation acts to further reduce surface tension forces between  
2 the coaster and drinking vessel which tends to completely eliminate cling of  
3 the coaster to the underside of the drinking vessel.

4

5 While the invention has been described in connection with what are presently  
6 understood to be the most practical and preferred embodiments, it is to be  
7 understood that the invention is not limited to the disclosed embodiments,  
8 but rather to cover various modifications and equivalent arrangements which  
9 are included within the spirit and scope of the following claims.

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